



Partner Reported Opportunities (PROs)
For Reducing Methane Emissions

Install Excess Flow Valves

Compressors/Engines ☐
Dehydrators ☐
Pipelines ☐
Pneumatics/Controls ☐
Tanks ☐
Valves ☒
Wells ☐
Other ☐

Applicable sector(s):

☐ Production ☐ Processing ☒ Transmission and Distribution

Partners reporting this PRO: Bay State Gas

Other related PROs:

Technology/Practice Overview

Description

Gas line breaks from ground movement, natural disasters or third party damage can result in potentially catastrophic events from gas release into the atmosphere. Partners reported automating shut-off of a ruptured gas service line by installing excess flow valves.

The excess flow valve responds to the high-pressure differential, created when a line is severed, by snapping shut to stop the flow of gas. Therefore, the amount of gas that would have otherwise escaped into the atmosphere in the event of a rupture is retained within the closed system. The valves do not protect against slow leaks such as those caused by corrosion or loose fittings.

Principal Benefits

Reducing methane emissions was:

☐ A primary justification for the project ☒ An associated benefit of the project

Operating Requirements

Excess flow valves should be tested and proven at the time of installation and at periodic intervals not to exceed one year.

Applicability

These safety valves may be applied to all gas service lines.

Methane Savings

16 Mcf/yr

Costs

Capital Costs (including installation)

☐ < \$1,000 ☐ \$1,000-\$10,000 ☒ > \$10,000

Operating and Maintenance Costs (Annual)

☒ < \$100 ☐ \$100-\$1,000 ☐ > \$1,000

Payback (Years)

☐ 0-1 ☐ 1-3 ☐ 3-10 ☒ > 10

Methane Emission Reductions

The amount of avoided methane emissions is a function of the service line diameter and pressure. Based on formula in the Pipeline Rules of Thumb Handbook (4th Edition, page 278) 16 Mcf/hour is emitted from a ½ inch service line at 50 psig. This is the estimated hourly gas savings when an excess flow valve is activated in response to a rupture along the service line.

Economic Analysis

Basis for Costs and Savings

Methane emission reductions of 16 Mcf/yr, costs, and payback apply to installing 350 excess flow valves, of which 1 is activated in a year. The valves are installed on a 50 psig, ½ inch service line.

Discussion

The primary consideration for companies when installing excess flow valves is to avoid catastrophic events, not reduce methane emissions. The economics of this PRO are based on the assumption that excess flow valves are installed on new and replacement high-pressure service lines.